AMENDMENTS TO THE CLAIMS

1. (Original) A diffusion barrier alloy film having a diffusion barrier layer made of an Re-W alloy σ phase containing 12.5 to 56.5% of W in terms of atomic composition and the remainder of Re excluding unavoidable impurities.

2. (Original) A diffusion barrier alloy film having a diffusion barrier layer made essentially of an Re-W alloy σ phase containing 12.5 to 56.5% of W and 20 to 60% of Re in terms of atomic composition, the total quantity of W and Re being 50% or greater, and, excluding unavoidable impurities, the remainder being of at least one selected from Cr, Ni, Co, and Fe.

3. (Currently Amended) A diffusion barrier alloy film according to claim 1 ~~or 2~~, wherein said diffusion barrier layer is formed by performing Re or Re alloy plating and W or W alloy plating on a surface of a metal base, and thereafter heat-treating the plated metal base at 1200°C or higher.

4. (Currently Amended) A diffusion barrier alloy film according to claim 1 ~~or 2~~, further having an Re-dispersed layer with Re dispersed therein, disposed in an interface between said diffusion barrier layer and a metal base to be coated with said diffusion barrier layer.

5. (Original) A diffusion barrier alloy film according to claim 4, wherein said Re-dispersed layer and said diffusion barrier layer are formed by performing Re alloy plating in two stages with different concentrations of Re on a surface of the metal base, performing W alloy plating on the plated surface of the metal base, and thereafter heat-treating the plated metal base at 1200°C or higher.

6. (Currently Amended) A diffusion barrier alloy film according to claim 1 ~~or 2~~, wherein said diffusion barrier layer has a surface coated with a diffusion alloy layer containing 10% or greater and less than 50% of Al, Cr, or Si in terms of atomic composition.

7. (Original) A diffusion barrier alloy film according to claim 6, further having a W-dispersed layer with W dispersed therein, between said diffusion barrier layer and said diffusion alloy layer.

8. (Original) A method of manufacturing a diffusion barrier alloy film having a diffusion barrier layer made of an Re-W alloy, comprising performing Re or Re alloy plating and W or W alloy plating on a surface of a metal base, and thereafter heat-treating the plated metal base at 1200°C or higher.

9. (Original) A method of manufacturing a diffusion barrier alloy film having a diffusion barrier layer made of an Re-dispersed layer with Re dispersed therein and an Re-W alloy, comprising performing Re alloy plating in two stages on the surface of the metal base, performing W alloy plating on a plated surface of the metal base, and thereafter heat-treating the plated metal base at 1200°C or higher.

10. (Original) A method of forming a diffusion barrier alloy film, comprising:

forming a diffusion barrier layer made of an Re-W alloy on a surface of a metal base by fused-salt plating; and

forming a diffusion alloy layer containing 10% or greater and less than 50% of Al, Cr, or Si in terms of atomic composition, on a surface of said diffusion barrier layer by fused-salt plating.

11. (Original) A method of forming a diffusion barrier alloy film, comprising:

forming surface irregularities on a surface of a metal base;

forming a diffusion barrier layer made of an Re-W alloy on the surface of the metal base on which the surface irregularities have been formed;

forming surface irregularities on a surface of said diffusion barrier layer; and

forming a corrosion-resistant alloy layer on the surface of said diffusion barrier layer on which the surface irregularities have been formed.

12. (Original) A method of forming a diffusion barrier alloy film, comprising:

forming surface irregularities on a surface of a metal base;

forming a diffusion barrier layer made of an Re-W alloy on the surface of the metal base on which the surface irregularities have been formed;

forming surface irregularities on a surface of said diffusion barrier layer; and

forming a wear-resistant layer on the surface of said diffusion barrier layer on which the surface irregularities have been formed.

13. (Currently Amended) A method according to ~~any one of claims 8 through 12~~ claim 8, wherein said Re-W alloy is made of an Re-W alloy σ phase containing 12.5 to 56.5% of W in terms of atomic composition and the remainder of Re excluding unavoidable impurities.

14. (Currently Amended) A method according to ~~any one of claims 8 through 12~~ claim 8, wherein said Re-W alloy is made essentially of an Re-W alloy σ phase containing 12.5 to 56.5% of W and 20 to 60% of Re in terms of atomic composition, the total quantity of W and Re being 50% or greater, and, excluding unavoidable impurities, the remainder being of at least one selected from Cr, Ni, Co, and Fe.

15. (Currently Amended) A method according to claim 8 ~~or 9~~, further comprising the step of diffusing Al, Cr, or Si after the metal base is heat-treated.

16. (Currently Amended) A method according to claim 8 ~~or 9~~, further comprising the step of plating the surface of said metal base with Cr in advance.

17. (Original) A high-temperature apparatus member comprising a metal base having a surface coated with a diffusion barrier layer made of an Re-W alloy σ phase containing 12.5 to 56.5% of W in terms of atomic composition and the remainder of Re excluding unavoidable impurities.

18. (Original) A high-temperature apparatus member comprising a metal base having a surface coated with a diffusion barrier layer made essentially of an Re-W alloy σ phase containing 12.5 to 56.5% of W and 20 to 60% of Re in terms of atomic composition, the total quantity of W and

Re being 50% or greater, and, excluding unavoidable impurities, the remainder being of at least one selected from Cr, Ni, Co, and Fe.

19. (Currently Amended) A high-temperature apparatus member according to claim 17~~ or 18~~, wherein said diffusion barrier layer has a surface coated with a diffusion alloy layer containing 10% or greater and less than 50% of Al, Cr, or Si in terms of atomic composition.

20. (Currently Amended) A high-temperature apparatus member according to claim 17~~ or 18~~, further comprising an Re-dispersed layer with Re dispersed therein, between said metal base and said diffusion barrier layer.

21. (Original) A high-temperature apparatus member according to claim 19, further comprising a W-dispersed layer with W dispersed therein, between said diffusion barrier layer and said diffusion alloy layer.

22. (Original) A high-temperature apparatus member according to claim 19, wherein said diffusion alloy layer has a surface covered with a ceramics layer.

23. (Currently Amended) A high-temperature apparatus member according to claim 17~~ or 18~~, wherein said diffusion barrier layer has a surface coated with a heat-resistant alloy film.

24. (Currently Amended) A high-temperature apparatus member according to claim 17~~ or 18~~, wherein said diffusion barrier layer has a surface coated with a wear-resistant film.

25. (New) A diffusion barrier alloy film according to claim 2, wherein said diffusion barrier layer is formed by performing Re or Re alloy plating and W or W alloy plating on a surface of a metal base, and thereafter heat-treating the plated metal base at 1200°C or higher.

26. (New) A diffusion barrier alloy film according to claim 2, further having an Re-dispersed layer with Re dispersed therein, disposed in an interface between said diffusion barrier layer and a metal base to be coated with said diffusion barrier layer.

27. (New) A diffusion barrier alloy film according to claim 2, wherein said diffusion barrier layer has a surface coated with a diffusion alloy layer containing 10% or greater and less than 50% of Al, Cr, or Si in terms of atomic composition.

28. (New) A method according to claim 9, wherein said Re-W alloy is made of an Re-W alloy σ phase containing 12.5 to 56.5% of W in terms of atomic composition and the remainder of Re excluding unavoidable impurities.

29. (New) A method according to claim 10, wherein said Re-W alloy is made of an Re-W alloy σ phase containing 12.5 to 56.5% of W in terms of atomic composition and the remainder of Re excluding unavoidable impurities.

30. (New) A method according to claim 11, wherein said Re-W alloy is made of an Re-W alloy σ phase containing 12.5 to 56.5% of W in terms of atomic composition and the remainder of Re excluding unavoidable impurities.

31. (New) A method according to claim 12, wherein said Re-W alloy is made of an Re-W alloy σ phase containing 12.5 to 56.5% of W in terms of atomic composition and the remainder of Re excluding unavoidable impurities.

32. (New) A method according to claim 9, wherein said Re-W alloy is made essentially of an Re-W alloy σ phase containing 12.5 to 56.5% of W and 20 to 60% of Re in terms of atomic composition, the total quantity of W and Re being 50% or greater, and, excluding unavoidable impurities, the remainder being of at least one selected from Cr, Ni, Co, and Fe.

33. (New) A method according to claim 10, wherein said Re-W alloy is made essentially of an Re-W alloy σ phase containing 12.5 to 56.5% of W and 20 to 60% of Re in terms of atomic composition, the total quantity of W and Re being 50% or greater, and, excluding unavoidable impurities, the remainder being of at least one selected from Cr, Ni, Co, and Fe.

34. (New) A method according to claim 11, wherein said Re-W alloy is made essentially of an Re-W alloy σ phase containing 12.5 to 56.5% of W and 20 to 60% of Re in terms of atomic composition, the total quantity of W and Re being 50% or greater, and, excluding unavoidable impurities, the remainder being of at least one selected from Cr, Ni, Co, and Fe.

35. (New) A method according to claim 12, wherein said Re-W alloy is made essentially of an Re-W alloy σ phase containing 12.5 to 56.5% of W and 20 to 60% of Re in terms of atomic composition, the total quantity of W and Re being 50% or greater, and, excluding unavoidable impurities, the remainder being of at least one selected from Cr, Ni, Co, and Fe.

36. (New) A method according to claim 9, further comprising the step of diffusing Al, Cr, or Si after the metal base is heat-treated.

37. (New) A method according to claim 9, further comprising the step of plating the surface of said metal base with Cr in advance.

38. (New) A high-temperature apparatus member according to claim 18, wherein said diffusion barrier layer has a surface coated with a diffusion alloy layer containing 10% or greater and less than 50% of Al, Cr, or Si in terms of atomic composition.

39. (New) A high-temperature apparatus member according to claim 18, further comprising an Re-dispersed layer with Re dispersed therein, between said metal base and said diffusion barrier layer.

40. (New) A high-temperature apparatus member according to claim 18, wherein said diffusion barrier layer has a surface coated with a heat-resistant alloy film.

41. (New) A high-temperature apparatus member according to claim 18, wherein said diffusion barrier layer has a surface coated with a wear-resistant film.